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Marshall University Natural Gas Tax Study Proves Virtually Nothing

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The Marshall University Center for Business and Economic Research's report, "Taxation of Natural Gas: A Comparative Analysis", compares taxes levied on natural gas production in West Virginia with other states.¹ The report concludes that West Virginia "places more taxes and fees on natural gas production than most...states" and that "taxes and other fees" influence "where drilling, extracting and manufacturing of gas transpires." A large body of evidence contradicts the conclusions regarding taxes and production in this report, however, and the report's method of determining the burden of taxation is flawed and incomplete.

Tax Burden

The study concludes that West Virginia places more taxes and fees on natural gas production than most other states. However, the number of taxes and their statutory rates tells us little about an industry's particular tax burden. Credits, limits, deductions, and how they are imposed all have an effect on tax rates.

Comparing the statutory severance tax rates tells us little about its burden. A more accurate assessment of relative tax burdens would calculate the overall effective tax rate. For example, West Virginia has a severance tax of five percent of gross value produced, while a state like Oklahoma has a severance tax rate that is dependent on the average price of gas. This makes comparisons of tax burden difficult by just comparing what is taxed.

Calculating an effective rate for severance taxes shows that West Virginia has one of the lowest severance tax burdens of the energy-producing states. The effective rate was calculated by dividing state severance tax revenue by the total value for shipments and receipts for services for the mining industry (including coal, oil, and natural gas).

This shows that West Virginia's effective state severance tax burden is lower than neighboring Kentucky, as well as Wyoming, Montana, New Mexico, and North Dakota (see **Table 1**). Simply comparing statutory rates does not accurately compare the tax burden. While this calculation does not isolate severance taxes on natural gas, it does illustrate the importance of determining the actual effective rate of a tax when determining its burden.

The Importance of Tax Policy

The report states that, "there are many factors which determine location, but, holding other things equal, state and local taxes will be an influential factor." Yet, of the factors that businesses typically use in determining the geographic locations of their facilities, taxes are the least significant.² The costs of labor, transportation, utilities, and occupancy are all more influential to business location decisions.

Minor differences in these other costs, like wages, can offset even major changes in tax policy. For instance, when looking at the average annual wage for construction and extraction occupations in the natural gas industry (see

Table 1
Effective State Severance Tax Rates, 2007

State	Mining, Oil and Gas Total Value	Severance Tax Revenue	Effective Rate
Alaska	\$21.7 billion	\$2.4 billion	11.2%
North Dakota	\$4.1 billion	\$391 million	9.6%
Montana	\$3.5 billion	\$264 million	7.5%
New Mexico	\$17.4 billion	\$942 million	5.4%
Kentucky	\$7.5 billion	\$275 million	3.6%
Wyoming	\$22.1 billion	\$803 million	3.6%
West Virginia	\$10.2 billion	\$328 million	3.2%
Oklahoma	\$34.2 billion	\$942 million	2.8%
Texas	\$101.9 billion	\$2.7 billion	2.7%
Louisiana	\$44.0 billion	\$904 million	2.1%

Sources: U.S. Census Bureau 2007 Economic Census and 2007 Annual Survey of State Government Tax Collections.

Table 2), on average, employees earned slightly more in Pennsylvania than in West Virginia. Overall, \$1.22 billion in wages were paid in West Virginia to these occupations. But, if the same average wages in Pennsylvania were applied to the employees in West Virginia, \$1.287 billion in wages would have been paid out, a difference of \$67 million. In fact, the difference in wages is more than the amount that the natural gas industry paid in severance taxes in West Virginia in 2010.

In addition, studies of taxes in several other states have shown that tax rates, particularly severance tax rates, have little effect on production. A recent University of Wyoming study found that a two percentage point reduction in the state's oil severance tax would increase production by only 0.7 percent over 60 years while dramatically decreasing government revenue.³ However, the study also found that raising taxes had a negligible effect on production, and that "the main effects of the tax increase would be to dramatically increase Wyoming's severance tax revenues and to reduce federal corporate income taxes paid by producers."⁴ A study in Utah found similar results; that even significant changes to severance tax rates had large impacts on government revenue, but very little impact on industry production.⁵

A more recent Penn State study found that every \$100 million in severance tax imposed on oil and natural gas companies would create a "net gain" of more than 1,100 jobs and would slightly boost gross state product.⁶ The study found this was largely because the negative effects of the imposed severance tax on employment, output, and income did not offset the increased spending of severance tax revenue by state and local government.

Scholars and analysts also point out that state severance taxes are highly exportable and tend to fall on consumers rather than producers, especially in the short run.⁷ A 2011 study by the Tax Foundation found that state severance tax burdens are shifted primarily to consumers in other states.⁸ Texas, one of the few states with a tax incidence model, exports more than half of its oil production tax.⁹ Minnesota found similar results, suggesting that 90 percent of its mining production taxes on taconite are exported.¹⁰ According to the WV Division of Energy, approximately 90 percent of the coal and 57 percent of the natural gas produced in West Virginia is exported.¹¹

Table 2

Average Annual Wages in Construction and Extraction Occupations

Occupation (SOC Code)	WV Average Wage	PA Average Wage
First-Line Supervisors of Construction Trades and Extraction Workers (471011)	\$65,860	\$64,630
Construction Laborers (472061)	\$31,870	\$33,290
Operating Engineers and Other Construction Equipment Operators (472073)	\$38,970	\$43,740
Electricians (472111)	\$47,980	\$55,940
Painters Construction and Maintenance (472141)	\$34,610	\$38,880
Derrick Operators Oil and Gas (475011)	\$42,670	\$41,920
Rotary Drill Operators Oil and Gas (475012)	\$47,080	\$41,550
Service Unit Operators Oil, Gas and Mining (475013)	\$40,480	\$38,530
Mining Machine Operators - All Other (475049)	\$41,380	\$42,380
Roustabouts Oil and Gas (475071)	\$28,730	\$30,490
Helpers - Extraction Workers (475081)	\$43,880	\$31,210
Extraction Workers - All Other (475099)	\$39,460	\$44,890

Source: Bureau of Labor Statistics, Occupational Employment Statistics System.

The Importance of Tax Parity

While the Marshall report proclaimed that “experience shows that taxes and other fees do play a part in where drilling, extracting and manufacturing of gas transpires. The natural gas field does not respect state boundaries. By placing wells near state borders, gas from one state can be easily transported to another. Gas processing and manufacturing businesses usually gather near drilling sites, and for that reason close parity, particularly with surrounding states, is desirable,” this warning too is unfounded.

The energy analysis firm Headwater Economics chronicled the experiences of Montana and Wyoming in the late 1990s.¹¹ At the time, energy exploration and production were flat in both states, energy prices were low, and both were looking for ways to jump-start their economies.

While Montana lowered production tax rates and added incentives for new production, Wyoming eliminated a severance tax reduction that had been previously enacted. As a result of the policy changes, the overall tax rate on the natural gas industry was 50 percent higher in Wyoming than in Montana.

Both states subsequently underwent a boom in natural gas drilling, but Wyoming has fared far better. Between 2000 and 2006, Wyoming added over \$10 billion in production value, while Montana only added \$2 billion. New drilling continues at a faster pace in Wyoming and the state is a leading energy producer.

Wyoming’s finances benefited as well, as revenue grew by 335% from 2000 to 2006, compared to 280% in Montana. The Department of Revenue in Montana concluded that new tax incentives cost the state \$515 million in lost revenue from 2003 to 2007.

The report concludes that there is little evidence to suggest the industry fled Wyoming to move to Montana to avoid the high tax burden, and that overall, there is no evidence to suggest that dramatically different effective rates have led to more or less investment state to state.

In 2010, West Virginia led the country in the number of new gas wells drilled. And, despite the lack of a severance tax, Pennsylvania drilled less than half (833) the number of new wells as West Virginia (1,896).¹²

Conclusion

Placing too much emphasis on tax policy in regard to development of the natural gas industry is a mistake. Tax policy is only one of many factors that influence the natural gas industry's exploration and production, and a small factor at that.

It is inconclusive whether or not West Virginia's tax burden is actually higher for the natural gas industry than for other states, but it has been shown that differing tax burdens do not influence the industry. Focusing on tax policy and worrying about its effects distracts from other important issues that need attention. Instead of attempting to lower the tax burden, the state should focus more attention on how to mitigate environmental impacts, boost employment and wages of in-state residents, and better position itself for once the energy boom ends and resources are depleted.

Endnotes

- 1 Calvin Kent, "Taxation of Natural Gas: A Comparative Analysis," Marshall University Center for Business and Economic Research, October 17, 2011.
- 2 Robert M. Ady, "Discussion," *New England Economic Review* (March/April 1997): pp. 77-82.
- 3 Shelby Gerking, et al, "Mineral Tax Incentives, Mineral Production and the Wyoming Economy," December 2000.
- 4 Ujjayant Chakravorty, et al., "State Tax Policy and Oil Production: The Role of the Severance Tax and Credits for Drilling Expenses," in *US Energy Tax Policy*, edited by Gilbert Metcalf, pg. 305-337 Cambridge University Press 2011.
- 5 Gabriel Lozada and Michael Hogue, "The Effect of Proposed 2009 Tax Changes on Utah's Oil and Gas Industry," University of Utah, December 18, 2008.
- 6 Rose M. Baker and David L. Passmore, "Benchmarks for Assessing the Potential Impact of a Natural Gas Severance Tax on the Pennsylvania Economy," Penn State Institute for Research in Training & Development, September 2010.
- 7 Robert Tannewald, "Fiscal Disparity Among the States Revisited," *New England Economic Review*, July/August 1998, pp. 7.
- 8 Mark Robyn and Gerald Prante, "State-Local Tax Burdens Fall in 2009 as Tax Revenues Shrink Faster than Income," Tax Foundation, February 2011, No. 189, pp.12.
- 9 Susan Combs, "Tax Exemptions & Tax Incidence: A report to the Governor and the 82 Texas Legislature," February 2011, pp.68.
- 10 2011 Minnesota Tax Incidence Study: An Analysis of Minnesota's Household and Business Taxes," Minnesota Department of Revenue, Tax research Division, March 15, 2011, pp. 100.
- 11 See link: <http://www.marshall.edu/cber/research/WVEF-2009.jpg>.
- 12 "Fact Check: West Virginia Led Nation in New Gas Wells in 2010," Pennsylvania Budget and Policy Center, April 11, 2011.